

OAT RESPONSE TO MESOTRIONE. Eric E. Dvorak and Kirk A. Howatt, Graduate Research Assistant and Assistant Professor, North Dakota State University, Fargo, 58105.

Field research was conducted at two locations in eastern North Dakota in 2002 and 2003 to evaluate oat response to mesotrione applied at varying rates and timings. Mesotrione at 26, 52, 105, 210 or 420 g ha⁻¹ were applied to two or four leaf oat in the first experiment, and at 105 g ha⁻¹ to pre emergence, spike, 1, 2, 3, 4, or 5 leaf oat in the second experiment. Each post emergence application included petroleum oil at 1% v/v and 28% urea and ammonium nitrate solution at 2.5% v/v. Field trials were established in a randomized complete block design with four replicates. Oat injury was evaluated during the growing season and harvested at maturity. Harvested seed weight was used to calculate yield, and germination was evaluated using a rolled towel test. Oat injury increased as mesotrione rate increased. Treatments receiving 210 or 420 g ha⁻¹ exhibited 25 and 45% injury 14 days after application (DAA), respectively. In the rate study, two leaf oat exhibited less injury than four leaf oat. In the timing study, oat treated between three and five leaf exhibited higher injury than oat treated prior to the three leaf stage, and injury was less than 5% for oat treated prior to three leaf and up to 15% at the five leaf stage 14 DAA. However, yield and germination were not different from untreated oat.